ABSTRACT OF THE DISCLOSURE

An apparatus for distributing processing loads in a service aware network is provided. The apparatus contains a controller and a plurality of packet processors coupled to the controller. The controller receives a first data

5 packet and determines whether or not any of the packet processors have been previously selected to process the first data packet based on a classification of the first data packet. When none of the packet processors has been previously designated to process the first data packet, the controller selects a first selected processor of the packet processors to process the first data packet. The first

10 selected processor is selected based on processing load values respectively corresponding to processing loads of the packet processors. In addition, a method performed by the apparatus and a software program for controlling the controller are also provided.